

may be apparent during and after Examination.

Radiation-type fireplaces (also called masonry or refractory fireplaces) have walls of refractory material which are well-insulated, so that their surfaces get as hot as possible over a large area, and re-radiate the maximum quantity of heat.

Circulation-type fireplaces (also called convection or prefabricated box fireplaces) have thin walls, so that most of the heat of combustion is conducted through them to the circulating air behind. Some heat is also radiated from the firebed, and a very little from the walls.

As a support for our contention that refractory fireplaces and pre-fabricated steel fireboxes function differently we enclose pages 8-10 and 70-76 from the book "How to Plan and Build fireplaces" Sunset Books published 1981 by Lane Publishing Co. of Menlo Park Ca. USA (Enclosure (B)), and pages 60,74 & 75 of "Book of Successful Fireplaces 20<sup>th</sup> Edition by R.J. Lytle and M.J Lytle published 1977 by Structures Publishing Co, Farmington, MI, USA (Enclosure (C)).

On page 9 of the Sunset Books publication it quite clearly distinguishes between masonry Fireplaces and prefabricated heat circulating types of fireplace. Page 60 of the Lytle publication explains that conventional masonry fireplaces radiate heat from the heated brickwork that surround the flames and pages 74 and 75 describes how the fabricated fireplace gives heat mostly by convection or circulation.

We would suggest that inventions that relate to the circulation type fire e.g. Park are not necessarily relevant to radiation type fires.

Notwithstanding the above the applicant has amended the claims to more fully distinguish from Park. The applicant now claims a refractory fireback having walls with inner surfaces that form one of a generally frustoconical and pyramidal shape with all the inner surfaces sloping inwardly from a height substantially level with the firebed to the top of the fireback to continuously decrease the cross sectional within the inner surfaces from a larger area substantially at the level of the firebed to a substantially smaller area at the

top of the fireback.

There are several structural differences between Park (CH 665012) and the present invention as now claimed in Claim 18.

1) the present invention is a refractory fireback whereas Park discloses a fabricated steel fire box. This is a significant difference as has been discussed above.

2) We require that the ALL the inner surfaces slope inwardly from a height substantially level with the firebed to the top of the fireback. Clearly in Park the rear wall begin to slope inwardly from a different height to the side walls and rear wall slopes inwardly from a height not substantially level with the firebed, but at height which is substantially level with the mid-height of the fire opening 4.

3) We require that the cross-section decreases continuously at a steady rate with increasing height from the fire bed, from the level of the firebed to the top of the fireback. Clearly in Park the reduction in cross-sectional area will involve a step change at the mid height level of the fire opening when the rear wall also begins to slope inwardly.

The newly cited Wade relates to a fireplace having a steel firebox lined on its inner surface with refractory material. The purpose of the structure is to transmit heat through to an air channel in a similar manner to Park. The thin refractory layer protects the steel allowing thinner steel to be used, and simulates a conventional fireback.

Since we are essentially dealing with very simple products we would emphasis that what appear to be minor differences in structure do make considerable differences to the operation of a fireplace.

Both Hendricks and Buffington disclose refractory fireplaces but do not show the features 2 & 3 disclosed above. The same comments apply to Zeller.

No combination of cited art discloses the present Invention as now claimed.

The applicant has devised a new and inventive refractory fireback in which all the inner surfaces of the walls slope steadily inwards from the level of the fire bed to the top of the fireback giving improved heat radiation into the room as well as ensuring a smooth and much increased up draught to ensure that substantially all smoke is removed from the fireplace. All this explained on page 6 of the specification. The up draught can be controlled in the usual way by means of a damper in the region of the throat.

It is believed that the claims as presently amended patentably distinguish over the cited references and this application should now be in condition for allowance and such action is respectfully requested.

If the Examiner still feels that there are some minor matters which still need to be resolve, Applicant's attorney would welcome a phone call from the Examiner at the below listed phone number.

Respectfully submitted,

  
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**Certificate of Transmittal**

I hereby certify that this correspondence is being facsimile transmitted to the US Patent and Trademark Office (Fax No. (703) 872-9306 April 6, 2004).

Paul E Milliken

Signature

